Teacher Notes - KEY

CW#39: Algebraic Explanation
Geometry

CRS	Geometry Content
Objective	4.7 Use Algebraic explanation to provide an argument 4.9 Use reflexive, symmetric, and transitive properties of equality/congruence

NOTEBOOKS:

Algebraic Properties of Equality

Let a, b and c be real #'s:

(1) Addition property	If $a=b$, then $a+c=b+c$
(2) subtraction property	If $a=b$, then $a-c=b-c$
(3) Multiplication property	If $a=b$, then $ac=bc$
(4) Division Property	If $a=b$, & $c\neq 0$, then $\frac{a}{c}=\frac{b}{c}$
(5) Substitution property	If $a=b$, then a can be substituted for b in any equation or expression
(6) distributive property	$a(b+c)=ab+ac$ (where a, b, c are real #'s)

example 1: solve $2x+5=20-3x$.

Equation:	Reason:
$2x+5=20-3x$	given
$+3x \quad +3x$	
$5x+5=20$	addition property of equality
$-5 \quad -5$	
$\frac{5x}{5}=\frac{15}{5}$	Subtraction prop of equality
$x=3$	division property of equality

STAY READY.

EX 2) Solve $-4(11x+2)=80$. Write a reason for each step.

equation:	explanation:
$-4(11x+2)=80$	given
$-44x-8=80$	distributive prop of =
$+8 \quad +8$	
$\frac{-44x}{-44}=\frac{88}{-44}$	addition prop of =
$x=-2$	division prop of =

EX 3) Solve for b in the formula $A=\frac{1}{2}bh$.

equation:	explanation:
$A=\frac{1}{2}bh$	given
$\frac{2A}{h}=\frac{bh}{h}$	mult. prop of =
$\frac{2A}{h}=b$	division prop of =

Geometry Text Pages 100 - 101: 3 – 12, 15 – 17; Challenge: #21 - 27

3) SUBTRACTION PROPERTY OF EQUALITY / ADD / DIV.

4) DIST. / SUB. / ADD

5)

6) ~~REFL~~ GIVEN / ADD / DIV

7) GIVEN / ADD / SUB / DIV

8) GIVEN / DIS / ADD / DIV

9) GIVEN / DIS / SUB / DIV

10) GIV / DIS / ADD / DIV

11) GIV / DIS / SIMP / ADD / DIV

12) GIV / DIS / ADD / ADD / DIV.

15) GIVEN / SUB

16) GIVEN / ADD / DIV

17) GIVEN / SUB / DIV

21) $\angle O + \angle CD$

22) $m\angle 2 + m\angle 1$

23) $\overline{AB}, \overline{CD}$

24) $S, \overline{TO}$

25) $m\angle 1, m\angle 3$

26) SUB / DIV

27) SYM $m\angle 7 \cong m\angle 6$ so $m\angle 6 \cong m\angle 7$

REFLEXIVE $m\angle W \cong m\angle W$

TRANS. $\overline{JK} = \overline{KL}$ $\overline{KL} = 12$ $\overline{JK} = 12$

Include diagrams in notes below to make it easier for students to understand!

Reflexive, Symmetric, and Transitive Properties:

	Real #'s	segment length	Angle Measure
Reflexive prop of =	For any # a, $a=a$ $(2=2)$	For any segment AB, $AB=AB$. $AB=5cm$ $5cm=5cm$	For any angle A, $m\angle A=m\angle A$ $m\angle A=20^\circ$ $20^\circ=20^\circ$
Symmetric prop of =	For any real #'s a & b, if $a=b$, then $b=a$ $a=2, b=2$ $2=2$	For any segments AB and CD, if $AB=CD$, then $CD=AB$.	For any angles A and B, if $m\angle A=m\angle B$ then $m\angle B=m\angle A$
transitive prop of =	For any real #'s a, b & c, if $a=b$, & $b=c$ then $a=c$	For any segments AB, CD, EF if $AB=CD$ & $CD=EF$ then $AB=EF$	For any angles A, B & C if $m\angle A=m\angle B$, & $m\angle B=m\angle C$ then $m\angle A=m\angle C$

STAY READY.

BB CW#48

Name: Answer Key TP: ___

CW#38: Two Column Proofs
Honors Geometry

CRS	Geometry Content
Objective	5.9 Write a two column proof

Think of writing a proof like solving a crime. You survey the crime scene, gather the facts, and write them down in your memo pad. To solve the crime, you take the known facts and, step by step, show who committed the crime. You conscientiously provide supporting evidence for each statement you make. We are not trying to "find an answer", but rather a process for which allows us to prove that something is in fact, true.

First, the blank structure of a proof should look like this:

Given: Known Information
Prove: Something something

Statement	Reason
Known Information	Given
(fact #1)	(why the fact #1 is true)
(fact #2)	(why the fact #2 is true)
(fact #...)	(why the fact #... is true)
Something something	...
	QED or □

The proof should *end* with what you are trying to prove

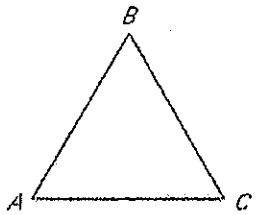
You can end your proof with QED, latin for *"Quod erat demonstrandum"* which means *"Which was needing to be proved"* It lets the reader know that something has been definitively proven. You can also draw a box: □

Postulate: statements that are assumed to be true w/out proof (a line contains two points)

Theorem: can be proved from definitions, postulates or previously proved theorems (ex- Pythagorean theorem)

*Record all postulate and theorems on yellow handout!

Example 1:
GIVEN: $m\angle A = m\angle B$, $m\angle B = m\angle C$
PROVE: $\angle A \cong \angle C$



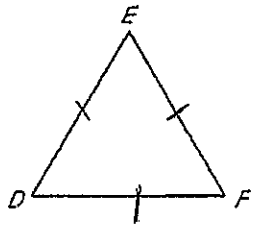
Statements	Reasons
1. $m\angle A = m\angle B$	1. given
2. $m\angle B = m\angle C$	2. given
3. $m\angle A = m\angle C$	3. transitive property
4. $\angle A \cong \angle C$	4. def'n of congruent angles

QED

PUSH IT TO THE LIMIT.

Example 2:
GIVEN: $DE = EF$, $EF = DF$

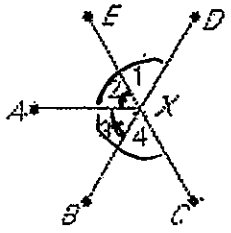
PROVE: $\overline{DF} \cong \overline{DE}$



Statements	Reasons
1. $DE = EF$	1. Given
2. $EF = DF$	2. Given
3. $DE = DF$	3. transitive
4. $DF = DE$	4. symmetric
5. $\overline{DF} \cong \overline{DE}$	5. def'n $\cong$ segments

QED

Example 3:
Given $m\angle 2 = m\angle 3$, $m\angle AXD = m\angle AXC$
Prove $m\angle 1 = m\angle 4$



Statements	Reasons
1. $m\angle AXC = m\angle AXD$	1. given *write on yellow list
2. $m\angle AXD = m\angle 1 + m\angle 2$	2. angle addition postulate
3. $m\angle AXC = m\angle 3 + m\angle 4$	3. angle addition postulate
4. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 4$	4. substitution
5. $m\angle 2 = m\angle 3$	5. given
6. $m\angle 1 + m\angle 3 = m\angle 3 + m\angle 4$	6. substitution
7. $m\angle 1 = m\angle 4$	7. subtraction prop of =

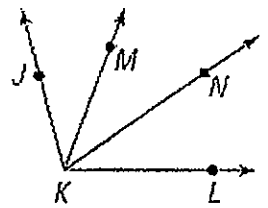
QED

1.
Given $BC = AB$
Prove $AC = AB + AB$

Statements	Reasons
1. $BC = AB$	1. given
2. $AC = AB + BC$	2. segment addition post.
3. $AC = AB + AB$	3. substitution

QED

2.
Given: $\overline{KM}$ bisects $\angle JKN$, $\overline{KN}$ bisects $\angle MKL$
Prove: $m\angle JKM = m\angle NKL$



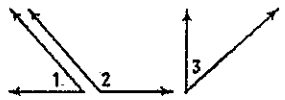
Statements	Reasons
(1) KM bisects $\angle JKN$, KN bisects $\angle MKL$	(1) Given
(2) $\angle JKM \cong \angle MKN$	(2) def'n of angle bisector
(3) $\angle MKN \cong \angle NKL$	(3) def'n of angle bisector
(4) $\angle JKM \cong \angle NKL$	(4) transitive prop

PUSH IT TO THE LIMIT.

3.

GIVEN ▶ $\angle 1$ and $\angle 2$ are supplements.
$\angle 3$ and $\angle 2$ are supplements.

PROVE ▶ $\angle 1 \cong \angle 3$

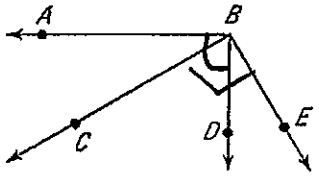


Statements	Reasons
1. $\angle 1$ and $\angle 2$ are supplements. $\angle 3$ and $\angle 2$ are supplements.	1. given
2. $m\angle 1 + m\angle 2 = 180°$ $m\angle 3 + m\angle 2 = 180°$	2. def'n of supp angles
3. $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3. substitution
4. $m\angle 1 = m\angle 3$	4. subtraction
5. $\angle 1 \cong \angle 3$	5. def'n of congruent segments

4.

GIVEN ▶ $\angle ABD$ is a right angle.
$\angle CBE$ is a right angle.

PROVE ▶ $\angle ABC \cong \angle DBE$

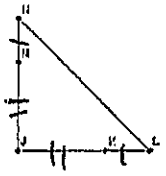


Statements	Reasons
1. $\angle ABD$ is right $\angle$	1. given
2. $\angle CBE$ is right $\angle$	2. given
3. $\angle ABC + \angle CBD = \angle ABD$	3. angle addition postulate
4. $\angle CBD + \angle DBE = \angle CBE$	4. angle addition postulate
5. $\angle ABD \cong \angle CBE$	5. def'n congruent angles
6. $\angle ABC + \angle CBD = \angle CBD + \angle DBE$	6. substitution
7. $\angle ABC = \angle DBE$	7. subtraction

5)

Given: $\overline{LK} \cong \overline{NM}, \overline{KJ} \cong \overline{MJ}$

Prove: $\overline{LJ} \cong \overline{NJ}$



Statements	Reasons
1. $\overline{LK} \cong \overline{NM}, \overline{KJ} \cong \overline{MJ}$	1. given
2. $LK = NM$ $KJ = MJ$	2. Def. of congruent segments
3. $LK + KJ = NM + MJ$	3. addition prop
4. $LK + KJ = LJ$ $NM + MJ = NJ$	4. Segment Addition Postulate
5. $LJ = NJ$	5. substitution
6. $\overline{LJ} \cong \overline{NJ}$	6. def'n congruent segments

PUSH IT TO THE LIMIT.

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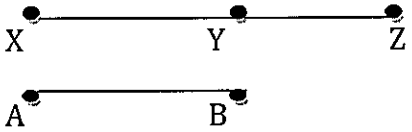
COPY ALL FIGURES AND TEXT INTO NOTEBOOK!

CW#41: Two Column Proofs
Geometry

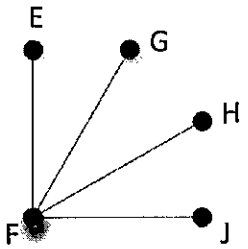
CRS	Geometry Content
Objective	5.9 Write a two column proof

SUBSTITUTION

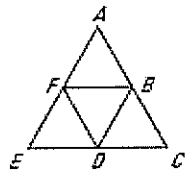
EXAMPLE 1:
Given: XY = AB
Prove: AB + YZ = XZ



EXAMPLE 2:
Given: $\angle EFG \cong \angle HFI$
Prove: $\angle EFH \cong \angle GFH + \angle HFI$

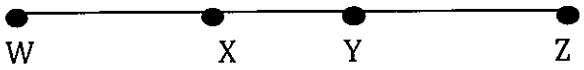


1.
Given: ED = AB
Prove: EC = AB + DC

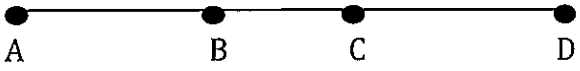


ADDITION

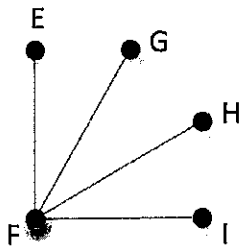
EXAMPLE 3:
Given: WX ≅ YZ
Prove: WY ≅ XZ



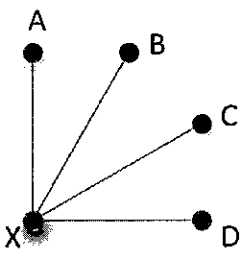
2.
Given: AB ≅ CD
Prove: AC ≅ BD



EXAMPLE 4:
Given: $\angle EFG \cong \angle HFI$
Prove: $\angle EFH \cong \angle GFI$



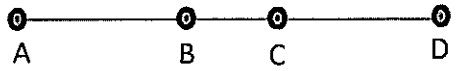
3.
Given: $\angle AXB \cong \angle CXD$
Prove: $\angle AXC \cong \angle BXD$



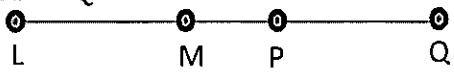
STAY READY.

SUBTRACTION

EXAMPLE 5:
Given: AC = BD
Prove: AB = CD



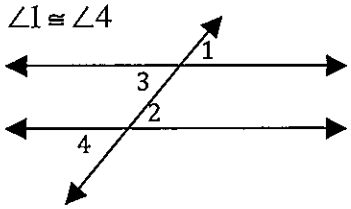
4.
Given: LP = MQ
Prove: LM = PQ



TRANSITIVE (& SYMMETRIC)

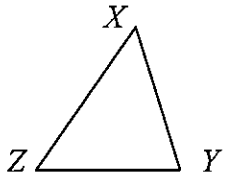
EXAMPLE 6:
Given: $\angle 1 \cong \angle 3$
$\angle \angle 3 \cong \angle 2$
$\angle \angle 2 \cong \angle 4$

Prove: $\angle 1 \cong \angle 4$

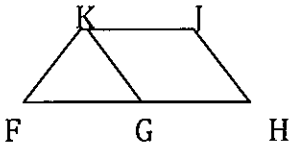


5.
Given: $XZ \cong ZY$
$ZY \cong YX$

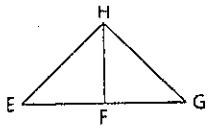
Prove: $XZ \cong YX$



EXAMPLE 7: ***TRANSITIVE WILL NOT ALWAYS BE IN ORDER!**
Given: FG ≅ KJ
GH ≅ KJ
Prove: FG ≅ GH

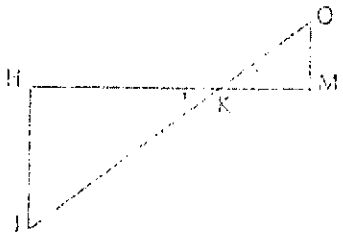


6.
Given: HE ≅ HG
FG ≅ HG
Prove: HE ≅ FG



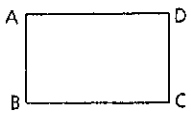
VERTICAL ANGLES

EXAMPLE 8:
Given: $\angle J \cong \angle 1$
Prove: $\angle J \cong \angle 2$



PERPENDICULARITY

EXAMPLE 9:
Given: $\overline{AB} \perp \overline{BC}$, $\overline{DC} \perp \overline{BC}$
Prove: $\angle B \cong \angle C$



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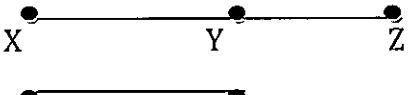
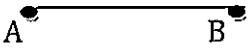
CW#39 Two Column Proofs
Geometry

CRS	Geometry Content
Objective	5.9 Write a two column proof

SUBSTITUTION

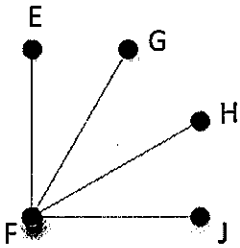
EXAMPLE 1:
Given: XY = AB
Prove: AB + YZ = XZ





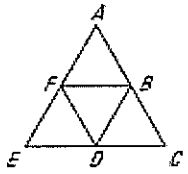
S	R
① XY = AB	GIVEN
② XZ = XY + YZ	② SEGMENT ADD POST
③ XZ = AB + YZ	③ SUBSTITUTION

EXAMPLE 2:
Given: $\angle EFG \cong \angle HFI$
Prove: $\angle EFH \cong \angle GFH + \angle HFI$



S	R
① ∠EFG ≅ ∠HFJ	① GIVEN
② ∠EFH = ∠EFG + ∠GFH	② ANGLE ADD POST.
③ ∠EFH = ∠HFJ + ∠GFH	③ SUBSTITUTION

1.
Given: ED = AB
Prove: EC = AB + DC

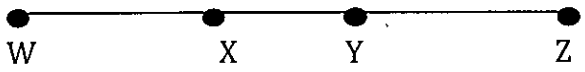


S	R
① ED = AB	① GIVEN
② EC = ED + DC	② SEG ADD POST.
③ EC = AB + DC	③ SUBSTITUTION

ADDITION

EXAMPLE 3:
Given: WX ≅ YZ
Prove: WY ≅ XZ

NEXT PAGE



2.
Given: AB ≅ CD
Prove: AC ≅ BD

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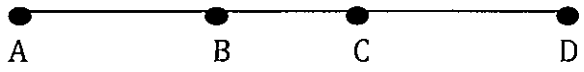
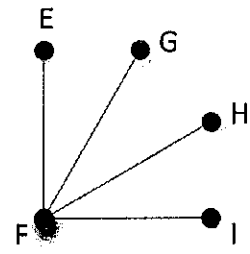
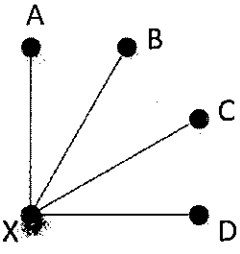


EXAMPLE 4:
Given: $\angle EFG \cong \angle HFI$
Prove: $\angle EFH \cong \angle GFI$



S	R
1) ∠EFG ≅ ∠HFI	1) GIVEN
2) ∠GFH ≅ ∠GFH	2) REFLEXIVE
3) ∠EFG + ∠GFH ≅ ∠HFI + ∠GFH	3) ADD PROP OF EQU.
4) ∠EFH = ∠EFG + ∠GFH, ∠GFI = ∠GFH + ∠HFI	4) ANGLE ADD POST
5) ∠EFH ≅ ∠GFI	5) SUBSTIT

3.
Given: $\angle AXB \cong \angle CXD$
Prove: $\angle AXC \cong \angle BXD$



S	R
1) ∠AXB = ∠CXD	1) GIVEN
2) ∠BXC = ∠BXC	2) REFLEXIVE
3) ∠AXB + ∠BXC = ∠CXD + ∠BXC	3) ADD PROP
4) ∠AXC = ∠AXB + ∠BXC, ∠BXD = ∠BXC + ∠CXD	4) ANGLE ADD
5) ∠AXC ≅ ∠BXD	5) SUBST.

STAY READY.

Ex3 S	R
1) $WX \cong YZ$	1) GIVEN
2) $XY \cong XY$	2) REFLEXIVE
3) $WX + XY \cong YZ + XY$	3) ADDITION PROPERTY OF EQUALITY
4) $WY = WX + XY$	4) SEG. ADDITION POSTULATE
5) $WY \cong XZ$	5) SUBSTITUTION

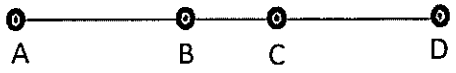
(2)

S	R
① $AB \cong CD$	① GIVEN
② $BC \cong BC$	② REFLEXIVE
③ $AB + BC \cong CD + BC$	③ ADD PROP. OF EQUALITY
④ $AC = AB + BC$ $BD = BC + CD$	④ SEGMENT ADD POST.
⑤ $AC = BD$	⑤ SUBSTITUTION

SUBTRACTION

EXAMPLE 5:
Given: AC = BD
Prove: AB = CD

NEXT PAGE



4.
Given: LP = MQ
Prove: LM = PQ

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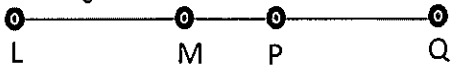
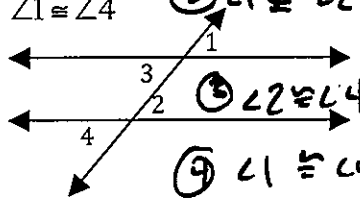


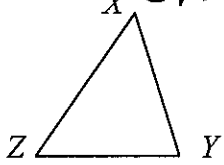
TRANSITIVE (& SYMMETRIC)

EXAMPLE 6:
Given: $\angle 1 \cong \angle 3$
$\angle \angle 3 \cong \angle 2$
$\angle \angle 2 \cong \angle 4$
Prove: $\angle 1 \cong \angle 4$



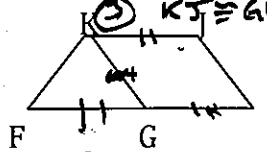
S	R
① ∠1 ≅ ∠3	① GIVEN
∠3 ≅ ∠2	
② ∠1 ≅ ∠2	② TRANS
③ ∠2 ≅ ∠4	③ GIVEN
④ ∠1 ≅ ∠4	④ TRAS

5.
Given: $XZ \cong ZY$
$ZY \cong YX$
Prove: $XZ \cong YX$



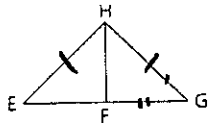
S	R
① XZ ≅ ZY, ZY ≅ YX	① GIVEN
② XZ ≅ YX	② TRANS.

EXAMPLE 7: *TRANSITIVE WILL NOT ALWAYS BE IN ORDER!
Given: $FG \cong KJ$
$GH \cong KJ$
Prove: $FG \cong GH$



S	R
① FG ≅ KJ	① GIVEN
② GH ≅ KJ	② GIVEN
③ KJ ≅ GH	③ SYM
④ FG ≅ GH	④ TRANSITIVE

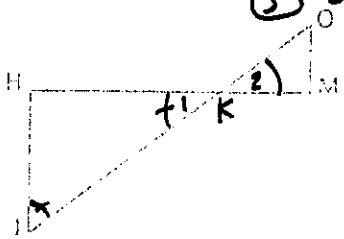
6.
Given: $HE \cong HG$
$FG \cong HG$
Prove: $HE \cong FG$



S	R
① ① HE ≅ HG	① GIVEN
② FG ≅ HG	② GIVEN
③ HG ≅ FG	③ SYM
④ HE ≅ FG	④ TRAN

VERTICAL ANGLES

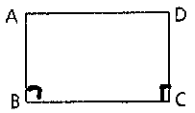
EXAMPLE 8:
Given: $\angle J \cong \angle 1$
Prove: $\angle J \cong \angle 2$



S	R
① ∠J ≅ ∠1	① GIVEN
② ∠1 ≅ ∠2	② VERTICAL ANGLES
③ ∠J ≅ ∠2	③ TRANS.

PERPENDICULARITY

EXAMPLE 9:
Given: $\overline{AB} \perp \overline{BC}$, $\overline{DC} \perp \overline{BC}$
Prove: $\angle B \cong \angle C$



S	R
① AB ⊥ BC	① GIVEN
② DC ⊥ BC	② GIVEN
③ ∠B = 90°	③ DEF'N ⊥
④ ∠C = 90°	④ DEF'N ⊥
⑤ 90° = ∠C	⑤ SYM
⑥ ∠B ≅ ∠C	⑥ TRANS

STAY READY.

EXAMPLE 5

S	R
① $AC = BD$	① GIVEN
② $BC = BC$	② REFLEXIVE
③ $AC = AB + BC$	③ SEGMENT ADD POST
④ $BD = BC + CD$	④ ADD POST
⑤ $AB + BC = BC + CD$	⑤ SUBSTITUTION
⑥ $AB = CD$	⑥ SUBTRACTION PROPERTY OF EQUALITY

4

S	R
① $LP = MQ$	① GIVEN
② $MP = MP$	② REFLEXIVE
③ $LP = LM + MP$	③ SEGMENT ADD POST.
④ $MQ = MP + PQ$	④ SEG. ADD. POST.
⑤ $LM + MP = MP + PQ$	⑤ SUBST.
⑥ $LM = PQ$	⑥ SUBTRACTION PROP OF EQU.

Name: _____ TP: _____

Homework #39 2-Column Proof
Geometry
Due Tuesday November 19, 2013

For the remainder of you Geometry year we want to focus on A) creating resourceful mathematicians and B) increasing the about of time you have to practice problems in class. In order to do this the format of your homework is changing. Your homework will now assess how well you prepare for the upcoming lesson. Your groups will randomly be required to present as a homework grade the items previewed the nights before.

Visit the following Youtube video: http://tinyurl.com/GeoMCP39 <this link is on the wiki>.
Begin watching at 13:00 and answer/finish the following questions:

Example #1 Given that $2(3x - 1) = 10$, prove that $x = 2$

Statement	Reason
1) $2(3x - 1) = 10$	1) GIVEN
2) $6x - 2 = 10$	2) DISTRIBUTIVE PROP
3) $6x = 12$	3) Addition Prop of Equ.
4) $x = 2$	4) DIVISION Prop of Equ.

Example #2 Given: $m\angle 1 \cong m\angle 3$ Prove $\angle DOB \cong \angle AOC$

Statement	Reason
1) $m\angle 1 \cong m\angle 3$	1) GIVEN
2) $m\angle 2 \cong m\angle 2$	2) REFLEXIVE PROP
3) $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$	3) Addition Prop of Equ
4) $m\angle DOB = m\angle 1 + m\angle 2$	4) Angle Add post
5) $m\angle DOB = m\angle AOC$	5) Substitution
6) $\angle DOB \cong \angle AOC$	6) DEF'N OF CONG.

Example #3 C is a midpoint of line AB. Prove: $x = 8.5$

Statement	Reason
1) C is midpt of AB	1) GIVEN
2) $AC \cong CB$	2) DEF'N OF MP
3) $AC = CB$	3) $\cong$ segments have = legth
4) $5x = 3x + 17$	4) Substitution Prop
5) $2x = 17$	5) Subtraction
6) $x = 8.5$	6) DIVISION Prop of =

STAY READY.

You should approach each problem as an exploration. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you're probably not the only one who is stuck, and that may even include your teacher. **If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook**. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.

Solve all of the problems on a piece of paper ***STAPLED TO YOUR HOMEWORK.*** If you are stuck and cannot answer a question, write at least three complete sentences about the problem and what you do know. Use at least one of the sentence starters below:

a. Even though I am stuck, I do know...and I think I should...because...
b. I am stuck because I do not know what ____ means. I think it means...so I tried...
c. I got this answer but I think it is wrong because...

Remember that you can always use old notes, a dictionary, math textbook, and/or look up topics online!

1) Let A = (0, 0), B = (7, 1), C = (12, 6), and D = (5, 5).
a. Plot these points and connect the dots to form the quadrilateral ABCD (*you must attach a piece of graph paper for this problem).*
b. Verify that all four sides have the same length (*verify means to state the length of each side, but also to explain how you determined the side length. Use numbers and words!)* use ruler
c. What is a polygon called when all sides are the same length (*write your answer in a complete sentence)*?
REGULAR

2) Which number is closer to zero, −4/5 or 5/4?
a. Draw a number line and place both fractions on the number line.

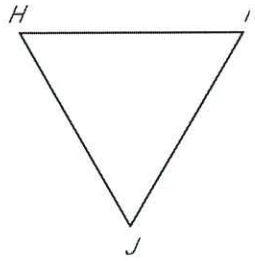
b. *Explain* how you know which number is closer to zero being as specific as possible.
$|-\frac{4}{5}|$ $(\frac{5}{4})$ $\frac{4}{5} < \frac{5}{4}$

3) Write an expression that represents the number that *(be careful about the order of the number, operation, and variable)*:
a. is 7 more than x *(for example: x + 7)*
b. is 7 less than x $x-7$
c. is x more than 7 $7+x$
d. exceeds x by 7 $x+7$
e. is x less than 7 $7-x$
f. exceeds 7 by x. $7+x$
g. is one-seventh of x $\frac{1}{7}x$

Name: _____ TP: _____

Homework #40 2-Column Proofs Cont.
Geometry
Due Wednesday, November 20th, 2013

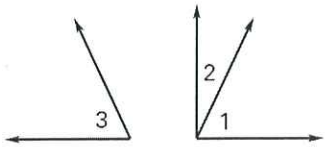
1. GIVEN: $HI = 9$, $IJ = 9$, $\overline{IJ} \cong \overline{JH}$
PROVE: $\overline{HI} \cong \overline{JH}$



Statements	Reasons
1. $HI = 9$	1. GIVEN
2. $IJ = 9$	2. GIVEN
3. $HI = IJ$ +1	3. SUBSTITUTION
4. $\overline{HI} \cong \overline{IJ}$	4. DEF $\cong$ SEG
5. $\overline{IJ} \cong \overline{JH}$ +1	5. SYMETRIC
6. $\overline{HI} \cong \overline{JH}$ +1	6. TRANS

2. GIVEN: $\angle 3$ and $\angle 2$ are complementary.
$m\angle 1 + m\angle 2 = 90°$

PROVE: $\angle 3 \cong \angle 1$



Statements	Reasons
1. $\angle 3$ and $\angle 2$ are complementary	1. GIVEN
2. $m\angle 1 + m\angle 2 = 90°$	2. GIVEN
3. $AL + LS = SK + LS$	3. ADD PROP of EQ
4. $AL + LS = AS$	4. SEG + POST
5. $SK + LS = LK$	5. SEG + POST
6. $AS = LK$	6. SUB

STAY READY.

You should approach each problem as an exploration. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you're probably not the only one who is stuck, and that may even include your teacher. **If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook**. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.

Solve all of the problems on a piece of paper ***STAPLED TO YOUR HOMEWORK.*** If you are stuck and cannot answer a question, write at least three complete sentences about the problem and what you do know. Use at least one of the sentence starters below:

a. Even though I am stuck, I do know...and I think I should...because...
b. I am stuck because I do not know what ____ means. I think it means...so I tried...
c. I got this answer but I think it is wrong because...

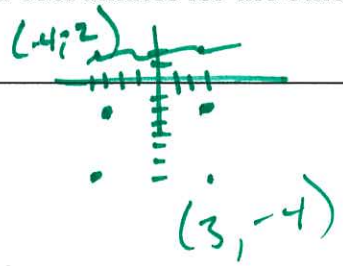
Remember that you can always use old notes, a dictionary, math textbook, and/or look up topics online!

1) Ryan took 25 minutes to type the final draft of a 1200-word English paper. How much time should Ryan expect to spend typing the final draft of a 4000-word History paper? $\frac{25 \text{ min}}{1200} = \frac{x}{4000}$ 83.33 min

2) Which of the following seven expressions does not belong in the list (*hint: Simplify all expressions and then compare! Watch for the sign of the variable – is it positive or negative)*?

a – b +c	a - b + c
c – b +a	a - b + c
c – (b – a)	c - b + a → a - b + c
–b + a +c	a - b + c
a– (b – c)	a - b + c
b – (c – a)	b - c + a a + b - c
a + c – b	a - b + c

3) The sides of a rectangle in the coordinate plane are parallel to the axes. Two of the vertices of the rectangle are (3,–2) and (–4,–7). Find coordinates for the other two vertices. Find the area of the rectangle.

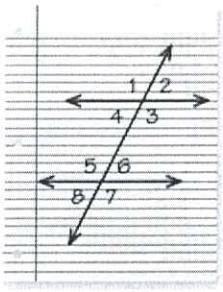


Name: _____ TP: _____

Homework #41 2-Column Proof
Geometry
Due Thursday November 21, 2013

Directions: Read the promt below. Respond to the prompt in at least 5 sentences. Your response will be scored out of 10 points on the rubric.

Refer to the figure below. What is the least number of angle measures you need in order to find the measure of every angle? Explain your reasoning.



Just 1.

1, 2 SUP
1, 4 SUP

1, 5 COR
1, 3 VERT
1, 7 ALT EXT

1, 6 SUP
1, 8 SUP

Criteria	0	1	2
Thesis/Answer	Thesis/Answer is incorrect.	Thesis/Answer is correct, but has small errors in wording and/or vocabulary.	Thesis is relevant, accurately stated and addresses the prompt.
Defense	Explanation does not answer the question as given.	Explanation attemps to answer the question, but is missing one or more correct pieces.	Explanation is completely correct.
Vocabulary	Vocabulary is used incorrectly or vocabulary terms unrelated to the prompt are used.	Vocabulary is used correctly in most places, but there are one or two errors in understanding.	All math vocabulary is used correctly and demonstrates knowledge in context.
Grammar	Explanation cannot be understood clearly after two readings.	Explanation requires two readings for the teacher to understand.	Explanation can be read and comprehended easily in one reading.
Professionalism	Explanation in incomplete.	Explanation is complete with minimum effort.	Explanation exceeds minimum effort or shows a great deal of thought and/or quality.

STAY READY.

You should approach each problem as an exploration. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you're probably not the only one who is stuck, and that may even include your teacher. **If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook**. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.

Solve all of the problems on a piece of paper ***STAPLED TO YOUR HOMEWORK.*** If you are stuck and cannot answer a question, write at least three complete sentences about the problem and what you do know. Use at least one of the sentence starters below:

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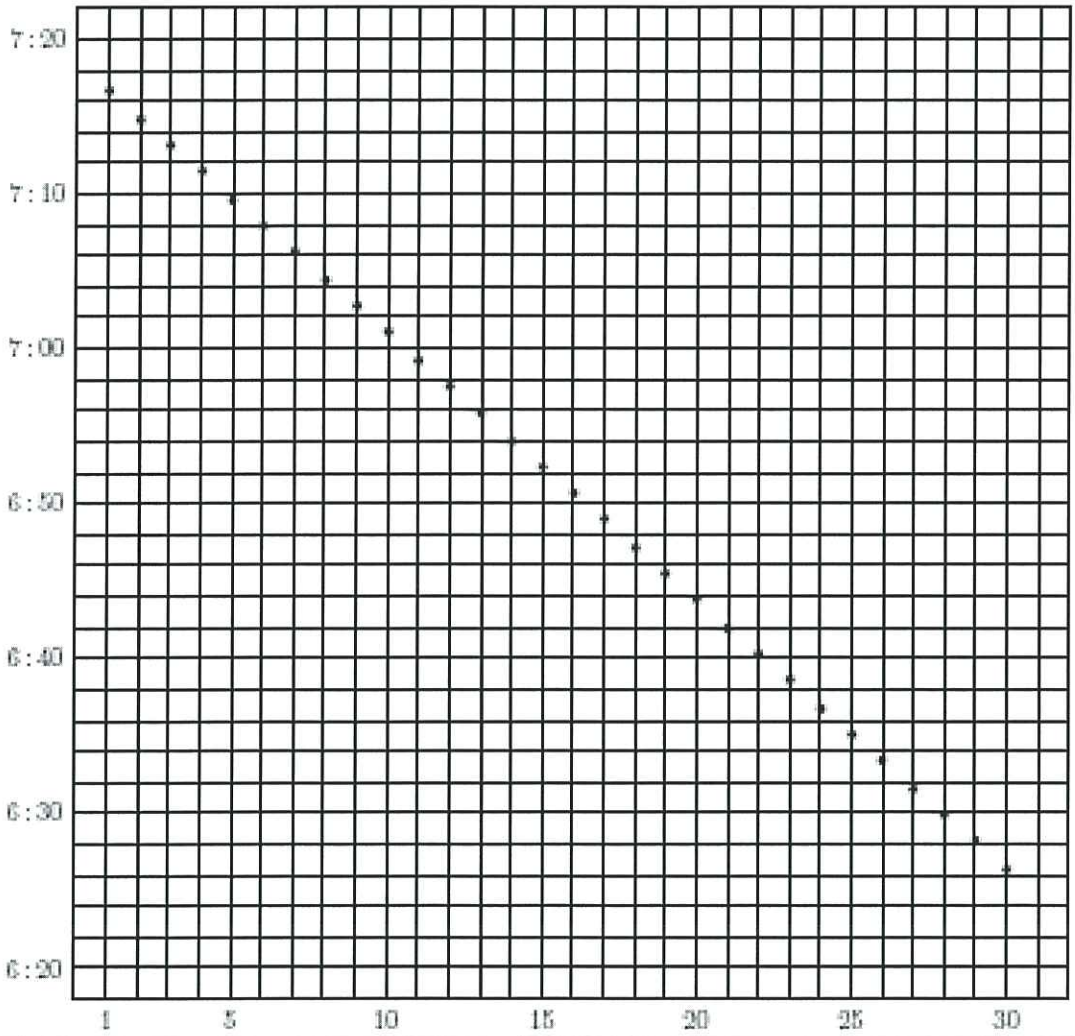
b. I am stuck because I do not know what ____ means. I think it means...so I tried...
c. I got this answer but I think it is wrong because...

Remember that you can always use old notes, a dictionary, math textbook, and/or look up topics online!



1) The graph displays the time of sunset at Exeter during September (*time is represented on the y-axis and date is represented on the x-axis)*. Some questions: 7:09

1. At what time did the sun set on the 5th of September? on the 30th of September? 6:26
2. On what day does the sun set at 6:54? at 7:08? at 6:30? 14 6 28
3. Guess the time of sunset on the 1st of October and on the 31st of August. 7:17 7:19
4. What is the average daily change (*we call this the slope of the line)* of sunset time during the month of September? -2 min

STAY READY.

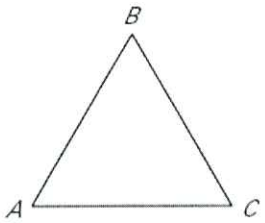
Name: _____ TP: _____

Homework #42 2-Column Proof
Geometry
Due Friday November 22, 2013

1) Use the Transitive Property

GIVEN: $m\angle A = m\angle B$
$m\angle C = m\angle B$

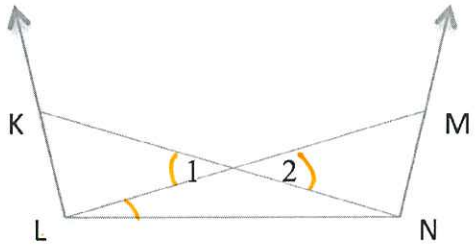
PROVE: $\angle A \cong \angle C$



① $m\angle A = m\angle B$	① GIVEN
② $m\angle C = m\angle B$	② GIVEN
③ $m\angle B = m\angle C$	③ REFLEXIVE
④ $m\angle A = m\angle C$	④ TRANS.

2) Use Vertical Angles

Given: $\angle MLN \cong \angle 1$
Prove: $\angle MLN \cong \angle 2$



$\angle MLN \cong \angle 1$ GIVEN
$\angle 1 \cong \angle 2$ VERTICAL (+1)
$\angle MLN \cong \angle 2$ (+1) TRANS (+1)

3) When x = 9, $x^2 = 81$.

		True/False
5) Conditional Statement	IF $x=9$, then $x^2=81$	T
Converse	IF $x^2=81$, THEN $x=9$ $x=-9$	F
Inverse	IF $x\neq 9$, THE $x^2\neq 81$ $x=-9$	F
Contrapositive	IF $x^2\neq 81$, THEN $x\neq 9$	T

***IF THE STATEMENT IS FALSE, YOU MUST PROVIDE A COUNTEREXAMPLE IN THE SPACE PROVIDED!

STAY READY.

You should approach each problem as an exploration. Problem-solving requires persistence as much as it requires ingenuity. When you get stuck, or solve a problem incorrectly, back up and start over. Keep in mind that you're probably not the only one who is stuck, and that may even include your teacher. **If you have taken the time to think about a problem, you should bring to class a written record of your efforts, not just a blank space in your notebook**. The methods that you use to solve a problem, the corrections that you make in your approach, the means by which you test the validity of your solutions, and your ability to communicate ideas are just as important as getting the correct answer.

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a. Even though I am stuck, I do know...and I think I should...because...
b. I am stuck because I do not know what ____ means. I think it means...so I tried...
c. I got this answer but I think it is wrong because...

Remember that you can always use old notes, a dictionary, math textbook, and/or look up topics online!

1) A handicapped-access ramp starts at ground level and rises 27 inches over a distance of 30 feet. What is the slope of this ramp? $\frac{27}{30} = \frac{9}{10}$

a. Draw a picture of the ramp, and label the distances.

b. Identify the slope and explain how you arrived at that answer.

RISE / RUN

2) Chandler was given $75 for a birthday present. This present, along with earnings from a summer job, is being set aside for a mountain bike. The job pays $6 per hour, and the bike costs $345. To be able to buy the bike, how many hours does Chandler need to work?

6/hr 345

$6x + 75 = 345$
$-75 \quad -75$
$6x = 270$
$x = 45$

STAY READY.

Homework #43 UNIT TEST REVIEW
GEOMETRY
Due Mondav November 25. 2013

Name: _____ TP: _____

Define the following key terms and write down everything you know about them.

Inductive Reasoning:

Deductive Reasoning:
FROM RULES

Negate:
MAKE OPPOSITE

Converse:
FLIP

Contrapositive:
FLIP & NEGATE

Inverse:
NEGATE

Conditional Statement:
IF, THEN

Conjecture:
FROM IND. REASONING

Review your notes on classwork **39 and 40** and study the **Algebraic Properties of Equality**. Review the **Reflexive, Symmetric and Transitive Properties**.

If you have any outstanding questions about any of these things, write them down here to make sure you are able to ask them before the test on Monday.

VARIES

STAY READY.

Both of the following arrive at the same conclusion. What makes one inductive reasoning and the other deductive reasoning?

While doing her homework, Taniya noticed the following pattern:	Today in class, Ms. Ziegler stated the following rule:
$\sqrt{2} \cdot \sqrt{2} = \sqrt{4} = 2$ $\sqrt{3} \cdot \sqrt{3} = \sqrt{9} = 3$ $\sqrt{4} \cdot \sqrt{4} = \sqrt{16} = 4$ So, she decides that if you are multiplying by the same radicand, you can simply rewrite the radicand without the radical: $\sqrt{x} \cdot \sqrt{x} = x$	$\sqrt{x} \cdot \sqrt{x} = x$ Therefore, Elena knows that if x = 7, then the following will apply: $\sqrt{7} \cdot \sqrt{7} = 7$

ONE FROM OBS. → IND

ONE FROM STATED RULE → DED

Following the same logic, would the following be inductive or deductive reasoning and how do you know?

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 ,13, 14, 15...

INDUCTIVE, OBS. PATTERN

Inductive reasoning can be proved wrong. If you said the above was inductive reasoning, write a counter example for the pattern to show that the conjecture would be wrong.

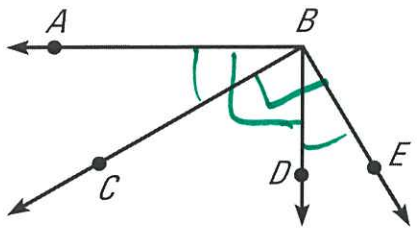
VARIES. ...15, 13, 17, 11, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 2, 3...

... 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45 ... 61

Create a proof for the following problem:

GIVEN ▶ $\angle ABD$ is a right angle.
$\angle CBE$ is a right angle.

PROVE ▶ $\angle ABC \cong \angle DBE$



S	R
1. ABD is right	1. Given
2. CBE is right	2. Given
3. $\angle ABC + \angle CBD = \angle ABD$	3. Angle App Post
4. $\angle CBD + \angle DBE = \angle CBE$	4. Angle App Post
5. $\angle ABD = \angle CBE$	5. Trans Cong
6. $\angle ABC + \angle CBD = \angle CBD + \angle DBE$	6. Sub.
7. $\angle ABC = \angle DBE$	7. Subtract